

What is claimed is:

1. An image reading device comprising:
 - an original mounting portion on which an original having an image region is placed;
 - 5 an original reading unit movable in a reading direction for reading the image region, the image region having an image region length in the reading direction;
 - 10 a movement control unit controlling the original reading unit to provide an acceleration region where the original reading unit accelerates from a halted state to a moving velocity, a constant-velocity region where the original reading unit maintains the moving velocity, and a deceleration region where the original reading unit decelerates from the moving velocity to the halted state, the original reading unit reading the image region at least in the constant-velocity region, the original reading unit starting to decelerate at a deceleration start position that is positioned between the constant-velocity region and the deceleration region;
 - 15
 - 20 a velocity setting unit setting the moving velocity of the original reading unit based on a specified image reading mode; and
 - 25 a deceleration-start-position setting unit setting the deceleration start position based on the moving velocity set by the velocity setting unit.

2. The image reading device as claimed in claim 1,
further comprising a region-length acquisition unit acquiring
the image region length,

5 wherein the deceleration-start-position setting unit
includes a velocity comparison unit comparing the moving
velocity set by the velocity setting unit with a reference
velocity, thereby obtaining a comparison result; and

10 wherein, if the velocity comparison unit has obtained
the comparison result that the moving velocity set by the
velocity setting unit is greater than the reference velocity,
the deceleration-start-position setting unit sets the
deceleration start position to one of a position within the
image region and a position immediately downstream of the
image region in the reading direction, depending on the image
15 region length and the moving velocity set by the velocity
setting unit.

20 3. The image reading device as claimed in claim 2,
wherein, if the velocity comparison unit has obtained the
comparison result that the moving velocity set by the
velocity setting unit is less than or equal to the reference
velocity, the deceleration-start-position setting unit sets
the deceleration start position to the position immediately
downstream of the image region in the reading direction,
regardless of the image region length.

25 4. The image reading device as claimed in claim 2,

wherein the original reading unit includes a storage unit storing an absolute length and a required deceleration distance, the absolute length being a length from a reading start position at which the original reading unit starts reading of the original to an absolute halt position, the required deceleration distance being a distance that is required for the original reading unit to decelerate from the moving velocity and reach the halted state;

5 wherein the deceleration-start-position setting unit further includes:

10 a required-deceleration-distance acquisition unit acquiring, from the storage unit, the required deceleration distance corresponding to the moving velocity set by the velocity setting unit; and

15 an absolute-length comparison unit comparing the absolute length with a comparison length that is a sum of the image region length and the required deceleration distance, thereby obtaining a comparison result; and

20 wherein the deceleration-start-position setting unit sets the deceleration start position to one of a position within the image region and a position immediately downstream of the image region in the reading direction, depending on the comparison result of the absolute-length comparison unit.

25 5. The image reading device as claimed in claim 4, wherein, if the velocity comparison unit has obtained the

5 comparison result that the moving velocity set by the velocity setting unit is greater than the reference velocity and the absolute-length comparison unit has obtained the comparison result that the absolute length is greater than or equal to the comparison length, the deceleration-start-position setting unit sets the deceleration start position to the position immediately downstream of the image region in the reading direction.

10 6. The image reading device as claimed in claim 4, wherein, if the velocity comparison unit has obtained the comparison result that the moving velocity set by the velocity setting unit is greater than the reference velocity and the absolute-length comparison unit has obtained the comparison result that the absolute length is less than the comparison length, the deceleration-start-position setting 15 unit sets the deceleration start position to the position within the image region.

20 7. The image reading device as claimed in claim 6, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the deceleration start position is a position that is advanced in the reading direction from the reading start position by a length that is obtained by subtracting the required deceleration distance from the absolute length.

25 8. The image reading device as claimed in claim 7,

5 wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the original reading unit performs deceleration reading from the deceleration start position to the position immediately downstream of the image region in the reading direction.

10 9. The image reading device as claimed in claim 2, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the deceleration start position is a position that is advanced in the reading direction from the reading start position by a length that is obtained by subtracting the required deceleration distance from the absolute length.

15 10. The image reading device as claimed in claim 2, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the original reading unit performs deceleration reading from the deceleration start position to the position immediately downstream of the image region in the reading direction.

20 11. The image reading device as claimed in claim 1, wherein the specified image reading mode is specified from a plurality of predetermined modes.

25 12. The image reading device as claimed in claim 11, wherein the plurality of predetermined modes includes a

plurality of monochrome modes having different resolutions in a scanner function, a plurality of color modes having different resolutions in the scanner function, a mode corresponding to a copy function, and a plurality of modes corresponding to original image types and resolutions in a facsimile function.

13. An image reading device comprising:
an original mounting portion on which an original
having an image region is placed;
10 an original reading unit movable in a reading
direction for reading the image region, the image region
having an image region length in the reading direction;
a movement control unit controlling the original
reading unit to provide an acceleration region where the
original reading unit accelerates from a halted state to a
moving velocity, a constant-velocity region where the
original reading unit maintains the moving velocity, and a
deceleration region where the original reading unit
decelerates from the moving velocity to the halted state, the
original reading unit reading the image region at least in
15 the constant-velocity region, the original reading unit
starting to decelerate at a deceleration start position that
is positioned between the constant-velocity region and the
deceleration region;
20 a region-length acquisition unit acquiring the image

region length; and

a deceleration-start-position setting unit setting the deceleration start position based on the image region length acquired by the region-length acquisition unit.

5 14. The image reading device as claimed in claim 13, wherein the deceleration-start-position setting unit includes a region-length comparison unit comparing the image region length with a reference region length, thereby obtaining a comparison result; and

10 wherein the deceleration-start-position setting unit sets the deceleration start position to one of a position within the image region and a position immediately downstream of the image region in the reading direction, depending on the comparison result of the region-length comparison unit.

15 15. The image reading device as claimed in claim 14, wherein, if the region-length comparison unit has obtained the comparison result that the image region length is greater than or equal to the reference region length, the deceleration-start-position setting unit sets the deceleration start position to the position within the image 20 region.

25 16. The image reading device as claimed in claim 15, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the deceleration-start-position setting unit

sets the deceleration start position to a position that is advanced in the reading direction from the reading start position by the reference region length.

17. The image reading device as claimed in claim 16,
5 wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the original reading unit performs deceleration reading from the deceleration start position to the position immediately downstream of the image region in the reading
10 direction.

18. The image reading device as claimed in claim 14,
wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the deceleration-start-position setting unit
15 sets the deceleration start position to a position that is advanced in the reading direction from the reading start position by the reference region length.

19. The image reading device as claimed in claim 14,
wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the original reading unit performs deceleration reading from the deceleration start position to the position immediately downstream of the image region in the reading
20 direction.

25 20. The image reading device as claimed in claim 14,

wherein, if the region-length comparison unit has obtained the comparison result that the image region length is less than the reference region length, the deceleration-start-position setting unit sets the deceleration start position to the position immediately downstream of the image region in the reading direction.

21. The image reading device as claimed in claim 14, wherein the reference region length is obtained based on a maximum required deceleration distance that is a distance required for the original reading unit to decelerate from a maximum moving velocity and reach the halted state.